heat of the waste gases will be placed at 1,700° by the quantity of energy which will be carried off from the combustion chamber (vide calculation on p. 114).
The difference between these two values yields the amount of energy which has remained in the combustion chamber.
The available heat of the gas is furnished by multiplication of the individual constituents of the waste gases by the temperature and the mean specific heat C* valid therefor (see table in Appendix).
Now it should certainly not be asserted that these numerical values have any sort of claim to exactitude, since values taken for the specific heats at such high temperatures are much too unsafe.
Nevertheless, one has found some ground for comparisons, and this may suffice to prove two facts well founded :—
1. The certainly startling result that under the conditions in the combustion chamber an equally high amount of heat can be available from a quite bad gas as by employment of the best gas.
2. That the utilisation of the heat in reality takes place differently to what was hitherto assumed.
This last conclusion is proved by the fact that about 400 calories are necessary for the production of 1 kilogramme of steel; so that it would not be possible to produce more than 2 kilogrammes of steel with 1 kilogramme C, even on the certainly inadmissible assumption that the whole amount of 830 calories shown to be given up in the combustion chamber could be used without any loss for the production of steel. In practice, however, already up to 5 kilogrammes steel per kilogramme C have been produced, and such an important difference demands another explanation than could be given by means of more exact values for the specific heats at high temperature. In the preceding the amount of heat energy which will be introduced into the combustion chamber has been ascertained from the available heat of the products of combustion. There is still another way to find this value ; it must be, i.e., the amounts of the available heats possessed by the gas and air plus the combustible value of the gas, since no other energy is at